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C E P A L
Economic Commission for Latin America

Nineteenth Session

Montevideo, Uruguay, 4-16 May 1981

AGRICULTURAL DEVELOPMENT IN THE 1980s

81-1-0134

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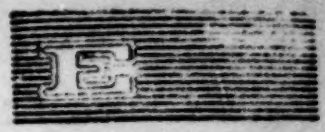

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/INTRODUCTION

INTRODUCTION

The diversity of situations currently to be found in agriculture in the different countries makes a regional appreciation difficult. This growing heterogeneity - which is repeated within each - determines differences in the importance of agricultural activity within the economy overall, in the trend of its production, its links with domestic and foreign markets, the dimensions, characteristics, dynamism and economic performance of the sectors which compose it, the relationships between these sectors and between them and the rest of the economic system, and the degree to which rural social problems persist. Despite these difficulties, there are still sufficient common elements to attempt an overall view of the region, illustrating the course and intensity of the economic and social changes which Latin American agriculture has been experiencing.

In recent years the mutual dependence and the integrated evolution of the agricultural sector and the other sectors of the economy has become more obvious. The 1960s stressed the influence of urban and industrial affairs over rural matters, which means that agriculture has been increasingly conditioned by the action - also interrelated - of the economic, social and political forces which guide and give impetus to the other activities of production.

In some countries, agriculture continues to have great relevance; in others its position is more modest. But in the great majority of the national development strategies a very important role is allocated to the agricultural sector in achieving basic aims. In order to understand and appreciate the course and implications of the economic and social performance of agriculture, the basic connotations and the trajectory of the global development process must be very much taken into account, since agricultural development, to a large extent, has reflected the characteristics and responded to the general impulses of the national styles of development.

Agriculture in Latin America reveals a combination of potentials of which progressive advantage is being taken, and of problems still unsolved which may be getting worse. Clear and well-defined economic progress and noteworthy technological progress are to be observed, both based on the stimuli of economic policies and attractive - although selective - conditions of growing markets and increasingly substantial investments, financed from resources of different origins. This material progress coexists with rural poverty, which continues to be the predominant negative feature in Latin American agriculture.

Section I gives a brief analysis of the trends observed in the national agricultural processes, briefly describes the main problems and shows the essential characteristics and the repercussions of the behaviour of production.

/Section II

Section II contains the basic and the complementary objectives of agricultural development and the goals for the growth of production postulated for Latin American agriculture in the 1980s.

Section III refers to the implementation of the programme of action and presents some specific policy measures at the national and regional levels. In view of the variety of national situations it is not possible to give an exhaustive analysis of the policies nor is it advisable to include a catalogue of these, and reference only to some policy areas required to deal with basic common problems as been preferred. The governments will take the decisions which they may consider necessary and pertinent in this regard.

I. CENTRAL ASPECTS OF AGRICULTURAL DEVELOPMENT

1. Economic dynamism

(a) The behaviour of production

Between 1970 and 1979, the region's gross domestic agricultural product grew at an annual rate of 3.4%, thus increasing its absolute magnitude by 1.4. The increase in fisheries and forestry output, which was greater than that of crops and livestock, contributed to this growth. In terms of the gross value of production - at constant regional producer prices - crops and livestock grew at an annual rate of 3.1%.

Four countries - Brazil (5.1%), Colombia (4.9%), Guatemala and Paraguay - achieved average increases of more than 4% in their gross agricultural product. Another six countries - Bolivia, Chile, El Salvador, Ecuador, Dominican Republic and Venezuela - achieved an annual growth of their agriculture of between 3 and 4%. In another six - Argentina, Costa Rica, Haiti, Honduras, Mexico and Nicaragua - the annual increase fluctuated between 2 and 3%, and in three - Panama, Peru and Uruguay - it was less than 2%.

A persistent feature of crop output is the variability of harvest results, due to factors of different types: principally, favourable or adverse weather conditions, fluctuations in the yield of different products and the degree of flexibility for the rapid mobilization of the resources committed in each. Livestock production shows a more stable performance year by year, if the analysis covers both changes in the herds, the rate at which animals are taken for slaughter and for export on the hoof and unit yields.

In the second half of the 1970s the increase in output was nore rapid. During this period, some products showed particular dynamism, which took the form of changes in the structure of production. The growth in the output of oilseeds - and soya beans in particular - in Brazil, Argentina, Paraguay and Venezuela should be mentioned, as well as that of sugar and meat in Brazil, Mexico, Colombia and the Central American countries.

/Vegetables and

Vegetables and fruit exceeded the region's average growth rate. Harvests of roots and tubers, dry pulses and vegetable fibres grew less. Cereal output did not only increase notably less than the regional average, but showed very accentuated annual fluctuations in the volume harvested, which had adverse repercussions - in view of its relative importance - on the domestic supply of foodstuffs for human and animal consumption.

(b) Resources of production and technical progress

The area harvested grew at an annual rate of 2.1% in the 1970s, compared with 1.9% recorded in the 1960s, while the increased demand for some products led to changes in the use of land. The growth of the area harvested contributed around three-fifths of the annual increases in regional output of crops. In several countries and products unit yields have successfully been increased by significant amounts, and technical progress has penetrated notably among the large-scale and medium-sized producers linked to the more dynamic sections of the markets.

It is estimated that slightly over a quarter of the area of potential cultivation is being used. The largest area of land - 72% of the total - is located in the wet tropics where the land is characterized by its low natural fertility and its fragility; 24% is to be found in the subtropics, and the remaining 4% in the temperature subregion and the temperate sectors of the Andean cordilleras. Around half (54%) of the land reserved for cultivation belongs to Brazil; Argentina, Mexico and the countries of the Andean Group contain most of the rest. The incorporation of new land into crop growing has become more costly and complex as the "easy" frontier has run out.

The adverse effects on the environment have taken the form of the deterioration of the ecosystems particularly the wet tropics. These have lost a significant part of their agricultural potential, particularly as a result of erosion and soil exhaustion. Limited knowledge of the characteristics and attributes of these ecosystems has contributed to the insistence on unsuitable practices in handling them.

The growth of production based on the expansion of the agricultural frontier has been accompanied by ambivalent effects as regards the labour force and the environment. It has contributed to the spatial redistribution of the population but it has also facilitated the expropriation of the value accumulated by tenant farmer peasants who are displaced by medium-sized and large farms. As regards the environment, more than pollution, it has brought soil deterioration and exhaustion and the breakdown of fragile ecosystems.

Between 1969/1970 and 1978/1979 regional output of fertilizers increased from 1.3 to 2.9 million tons of nitrogen, phosphate and potassium fertilizers, while consumption increased more rapidly still (an annual rate of 8.1%) from 3.0 to 6.3 million tons, bringing imports up from 2.0 to 3.7 million tons; together with insecticides, herbicides and improved seeds,

/these fertilizers

these fertilizers constitute the basis of the biochemical technology incorporated into agriculture. The stock of tractors grew at an annual rate of 6% and there was renewed stress on mechanization during the second half of the 1970s. Between 1969/1970 and 1978/1979, regional imports of agro-chemical inputs and agricultural machinery increased from US$ 950 to 1 940 million in 1978, and nearly doubled the agricultural market for this type of goods.

Technological progress has rapidly penetrated the medium-sized and large-scale producers linked with the most dynamic sectors of the domestic and foreign markets. This has been less perceptible in the peasant sector. The course of technological progress has been influenced by the land holding system, the policies aimed at improving the technological base and boosting the modernization of the production process, the policies aimed at reducing the cost of capital and inputs and ensuring margins of profit, public investments in infrastructure and the supply and dissemination of technology which may be used by the different types of economic units. In this latter aspect, the private sector associated with foreign capital has been of particular relevance. However, the incorporation of biochemical technological innovations and machinery and equipment has been uneven, not only among countries and among regions in any one country, but also among types of production units and sectors of production.

(c) The accumulation in agriculture and the intersectoral terms of trade

In past decades, owing to its dimensions and its own resources, agriculture was a sector of importance in the majority of the country economies, while industry was to be found in incipient stages of development. Thus, since capital resources were scarce and external assistance limited - except in countries with high exports of minerals and oil - agriculture had to contribute to the growth of other economic activities. In addition there was a generalized conviction that the growth of agriculture could be achieved through a more efficient use of the resources already applied to the sector, and that its capital needs were more modest.

The rest of the economy has not only received a very considerable boost from the growth of agriculture, but has in different forms been able to absorb part of the agricultural surplus. Taxes on the domestic marketing of its products have contributed to this; the land tax, monetary policies aimed at reducing - through operations linked t external trade in agriculture - the income which should reach the producers; stable and low agricultural prices to ensure favourable terms of trade, particularly in industry, and the sustained low cost of labour to ensure cheap manpower for the rest of the economic system.

By the end of the 1970s, regional agriculture, although its economic dimensions were far greater, no longer occupied the outstanding place it had decades before as the generator of surpluses transferable to the rest of the economic system. In order for agriculture, in the context of

/restrictions which

restrictions which the nature of its present position in the economic system imposes, to continue to carry out the functions allotted to it, an effort should be made to restore to it at least part of the resources taken from it.

This task has been performed by means of three groups of policy measures (i) the reduction of the cost of capital by means of credits with subsidized interest, preferential cuts in tariffs on imports of machinery and agrochemical inputs, or their sale by the States at subsidized prices; (ii) the construction, expansion and diversification of extra-predial infrastructure; and (iii) technical assistance programmes for the production, domestic marketing, export, and development of specific crops considered to be of high priority for the growth of agroindustry and the expansion of the agricultural frontier.

In the circumstances the process of capital formation in agriculture and the consequent sectoral accumulation have been boosted by the size of the markets, the facilities of access to them and the level of increase in the prices of the products, the physical infrastructure available or its certain growth within specific periods of time, the availability of technical innovations and the degree of dissemination of their results agriculturally and economically speaking, the availability of credit under favourable conditions, the lower prices of capital goods and inputs for agricultural production, progress in linking agriculture with industry and with trade in agricultural products, and the availability of ideas and studies on agricultural projects and their subsequent bringing into line with government criteria for the selective promotion of production lines. On the other hand, unclear or adverse situations as regards the elements providing the impetus aggravate the restrictions within which agriculture conducts its production activities and social relations.

The farmers who make up the modern sector invest in terms of the yield they hope to obtain, weighted by the risk. They therefore engage in a sensitive and selective economic conduct with regard to policy measures and instruments adopted precisely to prevent the deterioration of agricultural yield. Their dynamism - reflected in production and technology - is evident, particularly in the most developed agricultural areas and in the most profitable items of production. They have knowledge and resources which allow them to make the most of a State-generated environment favourable to investments in agriculture, and to make a rational and expedite use of biochemical and mechanical technologies tested and ready for use.

The great mass of the peasants, whose basic motivation is to ensure a family income which will allow them to reproduce their labour force and replace their working tools and materials, spends on capital formation sums ranging from the minute expenditure of economic units in critical situations and very close to breakdown, to the very high expenditure of other units which are able to exceed their expanded reproduction and therefore adopt an economic conduct motivated by the growth of profits.

/It is

It is in this context of production units with different economic motivations and conducts that the social cost of the agricultural production process is defined and the group of trade relations of which agriculture is part is located. In a situation of sustained relative deterioration of agricultural prices the consequent transfers of earnings from agriculture to the rest of the economy are generated and the framework of restrictions in which it has to carry out its basic functions is aggravated. The perception of this depressive environment for agriculture, opens the way for the adoption of the compensatory measures described above, which in practice benefit in a discriminatory fashion large-scale and medium-level producers. The great mass of peasants, who are most affected by the relative deterioration in the prices of their products, must face the reduction of their purchasing capacity and thus resort to the overexploitation of their own labour force or of their renewable natural resources, the only means of obtaining the minimum income required to meet their basic needs.

2. Agriculture and the external sector

(a) Exports

During the 1970s, the region's agricultural exports grew at an annual rate of approximately 2.8% - between 1950 and 1972 the annual rate was 2.9% - while the world annual rate was nearly 4%. The participation of Latin America in world agricultural exports which had been dropping in earlier decades, remained relatively steady - around 12% - because the rate of growth of African exports fell, Near-East sales came to a standstill, there were changes in the structure and diversification of Latin American exports, and the increased efficiency of the region's production process put it in a better position to compete in international markets.

In 1973, the rate of growth of agricultural exports slowed; in 1974 this situation became worse, owing to the drop in exports of wheat, meat and cotton; as from 1976 there was a recovery owing to the increase in exports of cereals, sugar, soya beans and cotton. Eight products - wheat, maize, meat, bananas, sugar, coffee, cocoa and cotton - have accounted for 90% of agricultural exports. The diversification of exports continues, generally speaking, to be limited and slow, although some countries, Chile in particular, have achieved noteworthy progress in this regard.

Of the total produced in the region, the fraction exported has remained at around 14%. 10% of Latin American exports are earmarked for the intra-regional market; two-thirds of extra-regional exports go to developed countries, particularly those of the European Economic Community (EEC) and the United States, and the rest to developing countries in other regions and countries with centrally planned economies.

/The characteristics

The characteristics of concentration, dependence and vulnerability of Latin American exports have not varied. A limited variety of products is exported which goes to a small spectrum of importer markets with clearly-defined seasonal needs, particularly for fruit and vegetables. The conjunction of these two situations slows the dynamism of regional exports and makes it difficult to reduce risks inherent in the fluctuations of the volumes and prices of products exported. Latin America's external demand is not stable but determined by the economic fluctuations of the main importer countries. This is particularly the case of coffee, bananas and sugar, products of which Latin America furnishes nearly 60% of world supply. The instability of earnings from agricultural exports continues to affect adversely agricultural and global Latin American development.

In recent years, exports have been close to or have exceeded 40% of output in the case of coffee, soya beans, cotton fibre, cacao and sugar. Exports of wheat and bananas constitute about 30%, while exports of maize, rice, beef and dry pulses account for less than 10%.

(b) Imports

Latin America's agricultural imports grew at an annual rate of 7% in the 1970s (the annual rate was 5.3% between 1965 and 1976). The speeding up of the growth rate was due to larger purchases of wheat, edible oils, milk products and maize for fodder made by several countries, particularly Mexico and the countries of the Andean Group. Between 1975 and 1979, imports of these products grew at an annual rate of 9%. 60% of total agricultural imports were accounted for by cereals and 30% by edible oils and milk products.

Agricultural imports - at 1975 international prices - accounted for 10% of the region's supply. A third of the agricultural products imported by the Latin American countries come from the region itself and slightly over 60% from developed countries, a dependence which is aggravated by the fact that these supplies are handled by a small number of major export companies which concentrate supply, particularly for cereals.

The degree to which the different countries depend on imports to complete their home supply is notably varied. Argentina, Brazil, Colombia, Guatemala, Mexico, Nicaragua, Paraguay and Uruguay import less than 5% of their domestic supply. Ecuador, El Salvador, Haiti, Bolivia, Costa Rica, Honduras and Panama are close to the regional average of 10%. For Cuba, Chile and Jamaica the figure fluctuates betwen 20 and 30%, increases to nearly 50% for Trinidad and Tobago and Barbados and goes up to nearly 75% for Grenada.

The region imports less than 10% of its requirements in maize, rice, sugar, coffee, cocoa, fruit, dry pulses and milk products; purchases of oilseeds go up to 25% and those of wheat and cotton fibre to over 50%.

/(c) Balance

(c) Balance of agricultural trade

In terms of value, Latin America shows increasingly large surpluses, although the situation varies according to subregions, countries and products. For example, two-thirds of the surplus corresponds to the countries of the Latin American Integration Association (ALADI). For the Andean countries their trade balance continues to show a surplus although to a decreasing extent. In the countries of the Central American Common Market (CACM), the increase in their exports gave rise to a positive and increasing agricultural trade balance. However, the Caribbean Community countries (CARICOM) show consecutive deficits on their agricultural external balance.

The countries which in recent years have imported large volumes of food in comparison with their needs, have in turn exported a large fraction of their agricultural output. For example, Jamaica, Nicaragua, Panama, the Dominican Republic, Suriname and Trinidad and Tobago export between 20 and 30% of what they produce, a figure which goes up to between 30 and 40% for Barbados, Cuba, El Salvador, Guatemala, Guyana and Honduras. In Costa Rica it is slightly over 50% and in Grenada it reaches 80%.

At the regional level parallel flows of extra-regional imports and exports of a single product can be found, which does not facilitate the increase of intra-regional trade. The region seems to be self-reliant in sugar, coffee, bananas and citrus fruits, in view of the small imports from third countries. Intra-regional trade accounts for 90% of regional imports of raw cotton, 58% for beef, 46% for rice and 30% for raw tobacco; however, it is very small as regards wheat, milk products and oilseeds, products in which the region as such is dependent on its extra-regional purchases.

3. Food and nutrition

National agricultural outputs continue in general to be the main component of the food supply, and constitute around three quarters of total production. Between 1970 and 1979, per capita regional output of food grew at an annual rate of 0.5%, while the total per capita agricultural output grew at only 0.4%.

Apparent consumption of food in the region grew at an annual rate of 3.4% in the 1970s, varying with the different agricultural and livestock products. Increases were registered in the per capita consumption of wheat, edible oils and fats, sugar, vegetables and fruit, pork, poultry meat, eggs and fish. Consumption of wool and cotton also grew. The consumption of pulses, tubers and roots has remained relatively constant, and that of maize and red meats has declined.

/Crops and

Crops and livestock products - valued in dollars at 1975 prices - currently account for 53% and 47% respectively of apparent consumption; valued in terms of food energy they represent 83% and 17% respectively. A notable difference between their money and energy values has large-scale repercussions in the field of nutrition, since as societies and people reach higher levels of wellbeing and wealth, their consumption of products of animal origin tends to increase. In Latin America, these changes towards the consumption of more varied foodstuffs, richer in animal and vegetable protein, took place particularly in the 1970s, but have been confined to the middle and high income strata of the major urban centres. The mass of the region's population lives mainly on cereals, sugar, tubers and roots; animal products are of little importance in their food, except in Argentina, Uruguay and Paraguay.

In order better to appreciate the evolution of the average nutritional levels of the region, by countries, the analysis of the average availability of products for consumption, measured in kilos per capita, should be supplemented by an analysis of the evolution of available food energy and how it adjusts to physiological demand.

The daily stock of food energy for every inhabitant of Latin America is approximately 2 550 calories. In 1976-1979 the daily per capita supply exceeded 7% of the region's minimum average needs. Both regional and national needs show that the food situation appears, generally speaking, to be acceptable. But when the figures are broken down large-scale disparities may be seen within the countries, stemming among other factors from the unequal distribution of income and the situations of poverty which affect a large proportion of the population.

According to FAO figures 1/ some 50 million people in Latin America are threatened with protein and energy malnutrition (15% of the region's population). This appreciation may be considered conservative if it is borne in mind that estimates of the magnitude of poverty showed that 19% of the Latin American population suffers from absolute indigence.

In many countries of the region an effort has been made to reach a higher level of integration and co-ordination in the preparation and implementation of complete, valid and efficacious food and nutrition programmes; but frequently changes in political support, in administration and in political guidelines have caused uncertainties, delays and failures in financial matters, which have frequently interrupted the implementation of programmes of this type. These have varied considerably in terms of strategy, objectives and specific policies, and this has in part been a reflection of the different approaches and political ideologies adopted by the countries.

1/ FAO, Fourth World Food Survey, Food and Nutrition Collection, No. 10, Rome 1977.

/The formulation

The formulation of national nutrition policies is hampered because many aspects relating to the nutritional situation of large-scale sectors of the population have still to be identified. There is a consensus that any solid and lasting improvement in nutrition levels requires as a prior condition the elimination of the extreme poverty which affects major groups of the population, particularly in rural areas and in the growing urban suburbs. The importance of peasant agriculture in the production and supply of foodstuffs should be stressed, particularly in the cases of maize and beans, which form the basis of the general diet. Although the family units continue to devote part of what they produce to self-consumption, output for the market has increased and plays an important role in feeding the population. The supply from peasant production has generally speaking shown great stability vis-à-vis conjunctural fluctuations and has guaranteed the supply of some commodities. This does not mean that peasants do not show flexibility in adapting their supply to new market opportunities.

4. Employment and income

The attempt to give full and reasonably remunerated employment to the agricultural labour force is one of the unsolved problems which has long been dragging on in nearly all Latin American countries. Redundant manpower in agriculture and in the rural milieu is a persistent phenomenon which is expressed in the dimensions reached by underemployment and open unemployment. The intensity of the discussion of this topic in recent decades reflects the difficulties met with by the country economies in solving the situation in global and sectoral terms. Despite the level of development achieved in urban and industrial fields, these economies have not been successful in surmounting serious situations of unemployment which are today a present fact both in the cities and in the country.

In rural areas, the incorporation of new land into crop-growing by pushing back the agricultural frontier, the improvement - generally theoretical - of the average man/land ratio which shows that cultivated land has increased by 20% in respect of the agricultural population, the incorporation of new technological inputs into the processes of production, and the considerable increases in the volume produced have not appreciably improved employment in agriculture. This is still more surprising if it is borne in mind that the regional agricultural economy is three times the size it was 30 years ago, and that in the same period the agricultural population only increased 1.4 times.

The general style of development and the agricultural style in particular have not permitted a better distribution of employment and income opportunities. The old problems of land ownership, or the new problems of concentration not only of land but fundamentally of capital, output and income which characterize the process of agricultural modernization, may be exacerbating the situation of the rural population in terms of employment and income; at least, positive changes of note are not to be seen.

/There are

There are some doubts as regards the effects of modern entrepreneurial agricultural organization on employment and its nature. It has long been argued whether the total number of working days increases or decreases with the adoption of modern technological patterns. Although there is no adequate assessment of this, it does seem clear that the nature of employment tends to change with the adoption of capital-intensive technologies; the change takes the form of a reduction in the number of workers hired on a permanent basis and an increase in the temporary hiring of unattached labour which comes from the minifundia or from neighbouring towns and even from cities, for certain tasks which it is not easy to mechanize.

The multiplication of the number of small peasant production units suggests that the rural labour force is basically and increasingly to be found in this stratum. Peasant agriculture seems to serve as a refuge for surplus labour, which in addition to coping with the work required by these small tracts of land, finds occasional work in the modern agricultural sector, and in tasks corresponding to other sectors (construction, public works, services).

Despite the modernization achieved in production, average productivity per active person in agriculture continues to be low; it is still equivalent to one-fifth of average productivity in the rest of the economy. This difference is affected by the modes of exchange between agriculture and other sectors of the national economies, and between these and developed countries. The inequalities are repeated among the segments making up the agricultural sector, and in the circumstances the medium-sized and large-sized agricultural units tend to accentuate the disparity between capital remuneration and entrepreneurial management on the one hand, and labour on the other, to the disadvantage of the latter.

5. Persistence of contradictions and their social implications

In 1973,2/ around 85 million persons - 70% of Latin America's agricultural population - lived in only subsistence conditions. Of this total, around 45 million were agricultural wage-earners and around 40 million small landowners. They attracted around 35% of total agricultural earnings, with a per capita income estimated at US$ 115 at 1970 prices. The medium-sized farmers accounted for 28% of the agricultural population and obtained 43% of agricultural earnings. Meanwhile, the big land owners - 2% of the agricultural population - attracted 22% of earnings with an average per capita figure of US$ 2 560 at 1970 prices; 47% of the land under cultivation was in their hands while the peasants only possessed 2% of the land.

2/ FAO, "Examen y análisis de la reforma agraria y el desarrollo rural en los países en desarrollo, desde mediados de los años sesenta", World Conference on Agrarian Reform and Rural Development (CMRADR/INF.3), Rome, July 1979.

The FAO Special Committee on Agrarian Reform in its 1971 report - ten years after the Meeting of Punta del Este - reached the conclusion that in Latin America the expropriation of land had reached barely 15% of the land which could potentially be expropriated, and that only 22% of possible beneficiaries had been incorporated into agrarian reform programmes and activities. This situation seems to have been prolonged up to the end of the 1970s. Although some countries have gone ahead with agrarian reform activities which have changed (in some cases substantially, as in Peru) the previous system of landholding. But no rigorous assessment has been made of the results of the agrarian reform programmes and activities undertaken in Latin America, and the contradictory arguments and judgements contained in different publications bring up old questions again.

The growth of agricultural production did not have the effect of alleviating poverty. Very little progress has been made in solving the problem of hundred and thousands of minifundium peasants and landless wage workers. There are indications that the absolute number of persons living in rural areas under precarious and even miserable living conditions has continued to increase as the agricultural population has grown, despite large-scale migration to the cities and the larger dimensions of the region's agricultural economy. The division of the land has markedly increased the number of small-sized farms, sometimes unusually small, which suggests that even more serious situations may be anticipated in the future. The land holding system, e onomic policies the effects of which in practice have been discriminatory, technical progress and the organization of production in the modern agricultural sector, the repercussions of which have had adverse social effects, and the rural social structure itself, have come to generate greater social inequality and greater poverty in the rural sectors in the majority of the Latin American countries.

6. Agriculture and energy

(a) Use of energy in agriculture

According to provisional estimates agriculture absorbs 1.5% of total regional consumption of commercial energy, and 2.5% of the region's total consumption of liquid fossil fuels. The use of energy in agriculture has been examined through the commercial energy absorbed by agricultural machinery and equipment, fertilizers and pesticides. The fertilizers - throughout the process of their manufacture, packaging, transport and distribution - absorb around 49% of the commercial energy applied to Latin American agriculture; they are followed by agricultural machinery and equipment with 48% - these use liquid fossil fuels - and pesticides with the remaining 3%.

The energy implicit in the regional consumption of fertilizers has grown at an annual rate of 11% between 1969/1970 and 1977/1978 and has risen from 2.4 to 5.6 million tons of petroleum equivalent. If the analysis only centres on the fertilizers produced in Latin America, this share is

/somewhat lower

somewhat lower since regional output - which tends to grow - accounts for 44% of the region's use of fertilizers. Within the total, the nitrogen fertilizers, both as a result of the requirements of their manufacture and distribution and their widespread use as manure, are by far those which absorb most energy (82%). They are followed by phosphates with 13% and potassium fertilizers with the remaining 5%.

In the 1970s there was an increasing consumption of liquid fossil fuels among the stocks of regional agricultural machinery and equipment. Between 1971 and 1976 this consumption grew at an annual rate of 5.2%; this rate rose to an annual 6.7% during 1976 and 1980, similar to the rate of total consumption of petroleum and its products in the region. In volume, consumption increased from 2.1 to 3.5 million tons of petroleum equivalent.

Available information indicates that not more than 10% of the region's agricultural economic units make exclusive use of motor power; 34% use a combination of motor power and animal traction, while the remaining 56% use human labour and animal traction. This explains how the region's agriculture, as has been said, has a share of only around 2.5% in the region's total consumption of liquid fossil fuels. The indicators of the number and types of machinery used in crop growing and the increase in the area harvested reinforce the affirmation that in the process of agricultural production human labour and animal traction predominate.

A lower utilization of liquid fossil fuels could result from the improvement of traditional crop-growing systems, the introduction of changes in the technological packages based on the intensive use of petroleum products and a larger share of the peasant sector in the production of the region's most characteristic crops.

Mechanized crops with the full application of biochemical advances have more than doubled - in several countries and cases - physical yields per hectare, but this increase in productivity has required the consumption of commercial energy - fuels, fertilizers, pesticides - to be multiplied approximately by twelve. This relationship perhaps cannot be generalized, but does indicate magnitudes which do not differ greatly from those corresponding to developed countries.

In 1980, the international price of oil was 12 times higher than in 1970. With few exceptions, the progress of domestic prices in the Latin American countries, is pegged to developments at the world level. The international prices of fertilizers have increased substantially less than those of oil, but even so nitrogen fertilizers have tripled and phosphate fertilizers doubled their prices. Partial information on the effects of national policies aimed at reducing the prices of technological inputs for agriculture, suggests that in many countries the domestic prices paid by farmers for fertilizers have been lower than international prices.

/However, in

However, in view of the relatively large share of liquid fossil fuels in the structure of the commercial energy consumed in agriculture, it may be assumed that the sudden increase in the prices of these fuels would have caused a deterioration in the yield of agricultural production units, if many governments had not adopted compensatory measures such as lowering the cost of capital and inputs, soft credits and direct or indirect subsidies for agriculture.

Until the end of 1973 the relation between agricultural prices and the prices of liquid fossil fuels favoured the former. From then on, the Latin American countries, with few exceptions and different degrees of intensity, found the purchasing power of farmers, expressed in terms of fuels, deteriorating. Between 1970 and 1973 agricultural purchasing power - measured in terms of liquid fossil fuel acquired - increased in the majority of the countries by around 11% and 37% respectively; on the contrary, in 1973 and 1977 it dropped, by around 2% and 32% respectively. Developments in petroleum prices between 1977 and 1980 lead it to be thought that this loss of purchasing power has probably been accentuated.

(b) Possibilities of converting the biomass into liquid fuels

The sustained increase of the price of liquid fossil fuels and their repercussions on the balance of payments has led agriculture to be considered as another alternative source of liquid fuels. Research to identify raw materials which may produce these and establish which products can be obtained from them and to define conversion processes has made progress. Sugar cane, yucca or manioc and sacchariferous sorghum, classed as energy crops, are the most notable. For several countries and in the sort-term, ethanol (ethylic alcohol) from sugar and yucca starch emerges as a supplementary source of liquid fuels. Vegetable oils are fuels suitable for diesel engines, but since further technical and economic analyses are still required - both in the agricultural and in the industrial stages of their production - they are regarded as medium-term options; the same is the case with methanol (methylic alcohol) from cellulose.

In the technical field, the most recent research is aimed at defining the use of ethanol as a fuel, both in its pure state and mixed with gasoline. In the latter case, in order to avoid modifying engines, the addition of anhydrous ethyl alcohol should not exceed 20%. The energy return 3/ of sugar cane is the highest; it is followed by sacchariferous sorghum and yucca.

3/ Relation between the energy consumed and the energy obtained.

/The use

The use of agriculture to produce food and energy crops raises questions as regards the future structure of production, variations in relative prices, the degree of technical change to which the country agricultures may be submitted, the periods within which satisfactory commercial responses will be obtained from the output which will be converted in liquid fuels and decreases in self-supply affecting the food and nutrition situation of the population. The possibilities of energy crops do not depend only on the development of more efficient conversion processes and variations in the relative prices of other liquid fuels; they are also conditioned to a large extent at the economic and social levels, by the competent use of land and the factors of production. Traditionally, agricultural production has been adjusted to the structure of demand, and particularly foodstuffs, its main component. As the present balance between supply and demand for food changes, chain reactions of some complexity and unforeseeable repercussions may be set off.

Several countries of the region have introduced efforts to produce liquid fuels and biogas (methane gas) from energy crops and vegetable waste respectively. Brazil has implemented a clearly-defined and important programme to produce ethyl alcohol (PROALCOHOL) and has in an experimental stage a programme to produce vegetable oil which could be used as fuel in diesel engines. Paraguay, Urugay, Colombia and some Central American countries have implemented programmes aimed at the production of ethyl alcohol to mix with gasoline. Guatemala has long experience in the production of methane gas from the anaerobic decomposition of vegetable waste. Argentina, Brazil, Colombia, Costa Rica, Ecuador, Peru and Trinidad and Tobago, among other countries, produce biogas and are carrying out research on different types of digesters to expand their output of methane gas.

7. Industrialization of agriculture

In the majority of the Latin American countries an accentuated process of industrialization in agriculture is taking place. National diagnoses coincide as regards the obvious growth potential of their agro-industries, the dynamism of which has been notably influenced by the transnational corporations.

Foreign private investment is associated with investments made in agriculture by the Latin American governments and producers, and its presence is more evident the more attractive and favourable are the conditions in the countries into which it penetrates and is implanted.

It tends to finance the production of processed foods and basic technological inputs for agricultural production and marketing. Foreign private capital supplements national capital - and when it can it replaces it - in the introduction of production units which are linked, under very favourable conditions, with national activities aimed at import substitution or export promotion, and based principally on the development of natural resources.

/The transnational

The transnational agroindustrial production units implanted in Latir America have grown in a different fashion. A very large proportion of their extension and diversification has been the consequence of the purchase of enterprises in operation and their merger with other new enterprises, thus saving part of the installation costs and accentuating concentration. This has allowed them to become larger and acquire additional networks of branches, adopt and select a great variety of technology, use skilled personnel and strengthen their operational capacity and their presence in new markets.

There is a far-reaching link between the transnational corporations and other foreign private investors and Latin American agriculture. They have made inroads into the exploitation of land, have taken advantage of cheap labour and have controlled the processing and marketing of many products; fruit, sugar, cotton, cocoa, meat, milk products, edible oils, wheat, tobacco, and stimulant and gaseous beverages. New areas of intervention have been progressively added; they supply to Latin American agriculture from the outside - or produce locally - machinery and equipment, agrochemical products, seeds, cattle feed, chickens, etc. To the production of basic processed foods they add that of foods for the high-income urban markets sold in chains of supermarkets or restaurants (sophisticated foodstuffs based on meat or milk, prepared dishes, confectionery, etc.). They also support the contracted production of fresh fruit, pulses, vegetables and flowers for the markets of developed countries, thus minimizing their own risks.

Latin American agro-industry grew at an annual rate of 5% in the 1960s and the 1970s. There are indications that this rate, and that of the increase in private foreign investments, has speeded up in recent years. In 1975/1976, Latin America attracted 80% of investments in developing countries made by the transnational corporations from the United States,4/ and the majority of these investments were concentrated in Mexico, Brazil, Venezuela and some Central American countries. Driving agricultural industrialization is increasingly raising the relative influence of the subsector on the rate of increase and the structure of primary agricultural output.

The activities of the transnational production units in agriculture have given rise to serious government concerns as regards their impact on the agricultural and agro-industrial development of the Latin American countries. The governments of the region are therefore reviewing aspects relating to a better adaptation of the transnational corporations to each country's development policies and strategies, so as to ensure that their modes of operation are commensurate with national needs and situations, particularly as regards technology, price formation, capital costs, access to external markets, handling of enterprises and plants, and so as to avoid interference in internal policy matters.

4/ United Nations, Commission on Transnational Corporations, "Transnational corporations in food and beverage processing", E/C.10/70, New York, 1980.

II. OBJECTIVES AND GOALS

1. Objectives

Agricultural development should contribute to achieving two basic objectives of a global nature: the elimination of hunger and of nutritional deficiencies and the eradication of situations of indigence, as part of a sustained improvement of conditions of life. It should also pursue a further two supplementary objectives: progressive self-supply in food and the growth of regional agricultural exports.

The speeding up of agricultural growth will permit appreciable improvements in economic and social matters, if growth is combined with a fairer and more rational distribution or redistribution, as the case may be, of incomes and the resources of production, mainly of land and water. As in the past, the mere speeding up of agricultural growth will have limited results in reducing social inequalities and rural misery. In an economic and social development perspective, the growth of agricultural production and the consequent major effort which must be made to achieve it are justified and take on full strategic significance, if they are part of a process of growth with redistribution.

The alteration of the pattern of agricultural development and the achievement of the basic and complementary objectives associated with it will require institutional changes which in turn may alter the fundamental parameters of this pattern. For obvious reasons of interdependence, the efficacy of such changes will depend on the institutional changes made in other sectors of the economic system, and in relations with the world economy. This is particularly the case as regards aspects which influence the domestic urban markets and the external markets for agricultural products, and the economy's capacity for investment.

In agriculture, these changes will tend to concern the conditions which regulate access to basic resources and their use within the process of production, the economic organization of production and particularly the criteria and machinery for the appropriation and use of the economic surplus generated in the process, the criteria and machinery for the allocation of resources in the sector, the conditions that regulate the generation, transfer and adoption of agricultural technology, and the economic and institutional organization of the processing and marketing of agricultural products.

These changes will make it possible to progress towards forms of organization and functioning of agriculture consistent with:

(i) more and better use of the potential offered by the region's productive resources - human and natural - in terms of the needs and objectives of Latin American society;

(ii) a fairer distribution of the benefits of technical progress within the agricultural population as a whole;

/(iii) the

(iii) the control of agricultural production resources and the transfer of economic decisions to an internal level, both indispensable for adjusting agricultural development and ensuring the sector's contribution to national development objectives; and

(iv) the strengthening of the links of reciprocity and complementarity of interests among the countries of the region and between these and other developing countries, so as to make better use of the possibilities of integration and co-operation in agricultural and food matters.

Agricultural development with these characteristics would be based on four basic elements, which would to some extent transcend sectoral limits:

(i) incorporation of poor peasants and landless workers into the processes of agricultural, rural and global development;

(ii) use of the capacity of the agricultural population to work the land and produce food in keeping with the characteristics of the resources available, avoiding the concentration of the economic surplus in specific social groups;

(iii) incorporation of social criteria in the allocation of resources for agricultural development; and

(iv) withholding of a major part of the economic surplus for transfer outside the sector, particularly abroad, through the transnational corporations, for reinvestment in rural development.

2. Goals 5/

(a) Growth of production

The standard goals for the economy as a whole establish an annual growth rate of the regional gross domestic product of 7.5% for the 1980s. It is postulated that agricultural output will speed up its growth and reach an annual rate of between 4 and 4.5%. This increase is indispensable for dealing with the growth of domestic demand - the demand for foodstuffs would probably grow by more than 4.5% annually - which carries along with it the growth of per capita income and which may be even more intensified if account is taken of the effort to eradicate extreme poverty undertaken by several countries of the region. It must also satisfy the growth objective of the net exportable agricultural balance.

In the foregoing pages it was said that Brazil, Colombia, Guatemala and Paraguay - which together generate 40% of the region's gross agricultural product - succeeded in attaining an annual growth rate of over 4% in agriculture during the 1970s. If in addition it is recalled that another

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5/ FAO prepared a world study entitled "Agriculture towards 2000" (FAO, C.79/24, July 1979), which was submitted for consideration to the governments at the twentieth session of this organization in Rome, in November 1979. The goals used in this document coincide with the projections for Latin America resulting from the global study referred to.

six countries - Bolivia, Chile, El Salvador, Ecuador, the Dominican Republic and Venezuela, which together generated 14% of the regional agricultural product - achieved annual growth rates of over 3%, it may be concluded that an annual goal of more than 4% is feasible at the regional level. This conclusion is applicable to the ten countries mentioned and could even be a relatively conservative proposal for some of them; however, it may be doubted whether a sharp increase in the growth rate would be feasible in the medium-term in several countries of the region, particularly those whose agriculture has been growing very slowly and which will have to make very considerable efforts.

The growth of production will allow the above-mentioned downward trend in self-supply to be countered and at the same time make it possible to speed up considerably the growth of exportable surpluses, which would grow at an annual rate of over 4% - the same rate as production - higher than that registered in the 1970s (2.8% annually). In the majority of the countries agricultural exports will continue to be of importance in total foreign exchange earnings, despite the progress achieved in the export flows of industrial products. External purchasing power will continue to depend, basically, on the increase in the exports of agricultural products, both in traditional and in new items, depending on the evolution and dynamism of agricultural output in the countries and international demand. In many countries, and particularly the smallest, the development of their economies will continue to depend on traditional exports or new branches of agricultural products, with the highest possible level of industrial processing.

The postulated goal of over 4% annually is essential if Latin America is to have access to the food required to improve the nutritional situation of its population. The daily per capita supply of calories would increase from 1 550 in 1978/1979 to around 1 850 in 1990. The amount of this increase can better be appreciated if it is recalled that between 1963 and 1975 it grew annually by barely 0.3%, while the annual increase anticipated for 1980/1990 would exceed 1.2%. Differences between countries are also to be expected; those of the Southern Cone would have the largest supply of food energy and those of the Andean subregion the lowest, but the latter would in any case show a higher national average than at present.

The proposed recovery of the regional food self-supply coefficient would make it possible to cut back the growth of agricultural imports. This recovery and its side-effects will be different depending on the subregions, countries and products. The supply of cereals, for example, would continue to show a deficit in most of the countries, except in those of the Southern Cone, and these products would therefore constitute around 60% of the region's future imports of foodstuffs. The countries which would need the largest imports of cereals would be the Central American countries, the Andean countries, those of the Caribbean. Mexico with the implementation of the Sistema Alimentario Mexicano (SAM) has decided to reduce its dependence on imports of basic cereals.

/The majority

The majority of exportable surpluses of cereals would be found basically in Argentina and Uruguay. Regional output of wheat, milk products and some vegetable oilseeds would continue to be inadequate to meet regional demand and, what is more serious, a simple extrapolation of historical trends suggests that the region will also have to face deficits - often substantial - in rice, maize, dry pulses, red meats and feed grains.

To change the trend means not only speeding up the growth rate of agricultural output, but also modifying its structure. This is reflected in the rates of increase postulated for its main components. Crops - which account for 68% of these - would grow at an annual rate of between 4 and 5% and livestock production - the remaining 32% - would increase between 4.5 and 5%. Among the crops, there would be a recovery in the production of coffee and cotton and the production of rice, maize, sorghum and other feed grains, vegetable oils, fruit and vegetables would increase. Among livestock products, the increase in the production of poultry and pig meat, followed by that of beef and milk would contribute to improving the share of the subsector in total production.

(b) Requirements in natural resources and inputs

Several studies furnish elements showing the feasibility of increasing agricultural production. Latin America's potential growing areas is around 600 million hectares. This figure includes 180 million hectares at present under cultivation, although about 110 million hectares are harvested annually - less than one-fifth of this theoretical potential; this proportion becomes smaller when it is considered that the areas for expanding the agricultural frontier may be of lower natural productivity. Availability of land is not therefore a limiting factor on achieving the proposed goal; what might constitute a restriction would be the magnitude of the cost of taking real advantage of this potential. Available data show that most of the reserve land 6/ is to be found in the wet tropics, whose natural fertility would seem to be low - and whose ecosystem is fragile, and therefore requires special attention to be given to preserving the environment. The difficulties of access to most of the reserved land implies the building of expensive means of communication, the costly upkeep of which could come to be an additional obstacle in the medium-term.

In absence of a reliable appraisal of the real dimensions of the land suitable for agriculture in the region, a review of the different sources of information leads it to be supposed that around 54% of this land belongs to Brazil, 18% to the countries of the Andean Group, 13% to Argentina, 6% to Mexico, 3% to the Central American countries while the remaining 7% is distributed among the remaining countries of the region. Since annual increases in regional agricultural output have fundamentally been based on the pushing back of the agricultural frontier - a situation which is repeated in the majority of the countries - some correlation would be required between the speed of growth of output and the dimensions of the potentially suitable land in that particular country. The margins of

6/ See paragraph 1 (b) of section I.

/growth of

growth of unit yields and of the increase in the crop intensity relationship, of course, form part of the production potential, taken in its broadest sense.

In order to achieve the postulated growth of regional production it would be necessary to incorporate about another 40 million hectares in the process of production which would increase the land under cultivation to over 220 million hectares. The area harvested would increase at its traditional annual rate of 2.1% and exceed 135 million hectares. Although the growth of the area harvested would maintain its historical trend, its contribution to increases in production would drop from 63 to 54%, while the contribution of the yield would increase from 37 to 46%. The effort to improve yields would make it possible to increase the physical yield per hectare by nearly 19% during the next ten years - it would grow around 2% annually - thanks to the combined effect of increased production per hectare harvested (74%) and intensity of cultivation. The latter, which is expressed through the area harvested/land under cultivation ratio, would increase from 0.61 to 0.64, contributing 26% to the increase in the aggregate physical yield of the land harvested.

The evolution which may be expected from the different subregions and countries differs in terms of availability of land and its capacity. In general terms, the improvement in yields would be more intense in the Caribbean and Central American countries and Mexico, while in countries like Brazil and those of the Andean Group, the growth in yields should be combined with the increase in the area harvested.

It is estimated that in Latin America 2 million persons per year currently emigrate from the country to the city. The tendency towards flight from the land would increase this annual figure, and it is estimated that in the 1980s some 25 million persons could emigrate. The agricultural labour force has been growing at an annual rate of 0.9%; this rate would drop to 0.6% annually, both because of migration and because of the lower growth rate of the population, which would mean that in 1990 the region would have around 42 million agricultural workers. Preliminary estimates indicate that the growth postulated in production would require an increase of around 33% in the number of human working days between 1980 and 1990, i.e., 2.9% annually. However, since in order to be able to reduce underemployment and unemployment the number of days worked per year should increase by at least 25% for each person engaged in agriculture, the rate of growth of employment would be lower: around 2.3% annually.

The increase in the value added per active person in agriculture could be achieved by effectively incorporating redundant labour into production, by intensifying the use of available labour or increasing the output of the active persons already employed, or else by using various combinations of these options. What actually may happen in the 1980s as regards unemployment and underemployment in agriculture will determine the magnitude of the increase in the employment and productivity of the labour force.

/In addition

In addition to the necessary structural changes already mentioned, the growth postulated will inevitably require a considerable mobilization of financial resources and the speeding-up of capital formation in agriculture. The increase in yields and the pushing back of the agricultural frontier would require large increase in the use of biological and chemical inputs and in the use of machinery, equipment and installations.

Inputs as a percentage of the gross value of production would increase from 25 to 28%. The use of fertilizers would nearly double - it would increase at an annual rate of 6.8% compared with 8.1% in the 1970s - and the quantity of nitrogen, phosphate and potassium fertilizers would increase from 50 to 76 kilos per hectare harvested. The proportion of improved seeds as a percentage of the total seeds used would increase from 48 to 55%. The use of pesticides would increase by 25% (at an annual rate of 2.3%) up to 1980. The number of tractors could increase at the same annual rate (6%) registered in the 1970s, decreasing from 130 to 90 the hectares harvested by tractor.7/ The technological changes and a greater use of biochemical inputs will reinforce the effects on yields of more intensive cultivation.

The injecting of dynamism into production and the stepping-up of technological progress is a complex process which will be possible as capital formation in agriculture increases. Primary gross agricultural investment - which includes investments strictly aimed at increasing production - should grow at an annual rate of 4.5%; in absolute terms it would increase from US$ 9 700 to US$ 15 100 million at 1975 prices, between 1980 and 1990. If the necessary investments to strengthen the supporting services to agriculture are added, particularly in storage and installations for marketing, processing and transport, expanded gross agricultural investment should grow at an annual rate of 4.1% and go from US$ 15 800 to US$ 23 700 million at 1975 prices. Increased growth in investments would mean that the relationship of primary gross investment to the gross agricultural product would rise from 17 to 24% between 1980 and 1990, and during the same period the share of agriculture in total gross investment would drop from 9.6 to 8%, which would not involve a burden which the economy as a whole would find it difficult to sustain. The share of expanded gross agricultural investment would drop from 14.5 to 11.9%.

7/ The future evolution of the stock of tractors will be conditioned by the actual degree of reorientation of technological progress. This will depend on the importance assigned in practice to the reactivation of production and social improvement in peasant agriculture, the speed at which the prices of liquid fuels increase and the degree of stability in their supply.

/For the

For the purposes of expanded gross agricultural investment it would be necessary to mobilize a mass of resources equivalent to US$ 255 billion at 1975 prices during the 1980s. Of these, US$ 164 billion would be channelled to primary production activities and the remaining US$ 91 billion would be earmarked for expanding the capacity and efficiency of the services of support and assistance for agriculture. Primary gross investment in crops would grow at an annual rate of 4.4% and in stockbreeding at an annual rate of 4.7%. Gross investments in services of support and assistance would grow at an annual rate of 3.5%. Of the total investments accumulated in the 1980s, the acquisition of machinery, equipment, working tools and biological and chemical inputs would absorb 50%; the habilitation of land, irrigation and drainage and the formation of plantations would absorb 33%, and the development of livestock farming the remaining 18%.

III. POLICY IMPLICATIONS

1. General considerations

At the regional level, the agricultural problem might be described as arising out of a situation in which a relatively satisfactory productive performance is combined with the persistence of faulty institutional arrangements whose adverse social repercussions may be growing worse.

The Latin American agricultural problem can be summed up in these terms, because Latin American rural society has been undergoing important changes and is no longer the same as in the early 1960s. The new urban and industrial structures, the penetration of technical progress and the insistence on profitability which accompanies it, the selective influence of the external sector, the aggressive dynamism of international agro-business, the achievement of substantial physical infrastructure and communications works, the land reform measures and the changes in the systems of land tenure and in labour relations, and government decisions to return to agriculture (through special policy measures and the establishment of various kinds of incentives) at least part of the surplus traditionally taken away from it - variegated factors have interacted and determined the economic and social differentiation now felt in regional agriculture.

It might be thought that the old structural dichotomy is still present, although with some variations resulting from the undeniable general and agricultural development which has taken place and from the passage of time. It might seem that we have gone from the latifundio-minifundio complex to a polarization between the modern sector and the great rural masses. What has really happened is that, in essence, the economic and social relations typical of the rural environment have become more

/functional. The

functional. The economic performance of the two poles mentioned, their interdependence with regard to and links with the rest of the economy, and their insertion into the international economy account for the coexistence of a dynamic boom in production with the persistence of unemployment and poverty affecting much of the agricultural and rural population.

The tendency of the modern sector towards the gradual concentration not only of agricultural production and income but also of the land and the opportunities derived from public policies and the product, factor and financial markets, along with its growing relationship with international agro-business, are features different from those which characterized Latin American agriculture in the past. The continuing decomposition and recomposition of rural agriculture is also a distinct reality, although are not fully understood.

In the 1980s, a series of changes should take place in regional agriculture (considered as a productive activity and a sphere of specific social relations) in such a way as to make it possible for manpower and land, those productive resources which abound in the majority of Latin American countries, to be appropriately combined among adequate techniques. It is obvious that a process of change of this kind and scope exceeds sectoral limits and becomes a challenge which national development policy must accept. It is within that policy that the agricultural sector can contribute substantially to the eradication of poverty and the elimination of hunger.

The origin of rural poverty is an insufficient material base resulting from geographic and climatic conditions, which have a negative impact on the agricultural productive potential of each country, and the national historical background; depending on the style of development adopted, political, social and economic powers are instrumental in increasing or relieving that poverty. The struggle against rural poverty and its eradication should be the pivotal aim of the rural development and agricultural policies implemented in the 1980s.

Of course the satisfaction of the basic needs of the population will be easier with a better material base resulting from the acceleration of the growth rate of production; but although productive expansion is necessary it is not enough; moreover, there is need to apply distributive or redistributive measures - depending on the peculiarities of each country - if the different segments of the population are to share more equitably in the results of the productive process.

The ability of poor groups to generate income is closely linked to the quality and quantity of work, which in turn depend on the conditions governing access to the productive resources, especially land. A more intense effort to produce extensive new job opportunities for the rural population is inescapable in the struggle to conquer rural poverty.

/A landless

A landless peasant class, or one with very few resources, is synonymous with the persistence of rural poverty. Access to the land is moreover a prerequisite for making better use of the forming capacity and ability inherent in rural people, and is one way of increasing the number of productive jobs. A wide variety of approaches, depending on national and local conditions, may be used to facilitate better access to the land.

Policies which are oriented towards solving the serious problems of rural poverty should necessarily try to dispel the most obvious contradiction in Latin American agriculture: the simultaneous existence of abundant land and of a growing number of families with no opportunity to work that land. The solution of that contradiction will, in its turn, help to improve the nutritional conditions of the rural population. Access to the land may be an important contribution to overcoming malnutrition in the rural environment. If land is available to a peasant, he can devote his work and the work of his family to food production and to some extent improve their nutrition. From this point of view, measures to eradicate rural poverty should include measures specifically designed to raise dietary levels.

Malnutrition is not only the sign of privation or deficiencies in food consumption; it is a consequence of lack of jobs and income, of deficiencies in education and information and of unfavourable health and environmental conditions. Policies aimed at solving problems of malnutrition must therefore go beyond the agricultural sector, though they are deeply involved with it.

In certain circumstances, food production will come into conflict with other uses of land, particularly those involving other important objectives such as the production on export crops or energy crops. Such conflicts of interest should not be allowed to produce negative effects with regard to the supply of basic foodstuffs, which become more expensive when supplies are reduced.

It should be borne in mind that the Latin American countries have amassed a wide range of experience in the adoption and implementation of agricultural policies and in the use of action instruments. The governments have gradually been expanding and strengthening their capacity to handle policy instruments of increasing complexity as well as their ability to introduce adjustments and corrections for adapting such instruments to new focuses and approaches. The countries in the region therefore now have a better capacity for orienting and anticipating the action they take with respect to agricultural and rural development and for lending consistency and continuity to their efforts to avoid the perpetuation of economic and social differentiation, a salient negative attribute of the agriculture of those countries.

/2. Some

2. Some specific policy measures at the national level

It is possible, within a regional perspective, to pick out and interpret the fundamental tendencies which characterize Latin American agriculture; similarly, alternative strategies which the majority of the countries in the region might follow can be presented; but since each country formulates its rural development and agricultural strategy on the basis of its own development objectives and styles and of its human, political, material and financial possibilities, it has been found preferable to mention some areas of policy measures, which go to the core of common problems noted previously but whose selection, adoption, coverage, depth and modality of implementation will correspond to national peculiarities and decisions.

In the implementation of national agricultural and rural development strategies, consideration will be given to the adoption of measures such as:

(a) Access to land, water and other natural resources

The agrarian situation of many countries in the region differs from that which prevailed two decades ago; however, it is still of strategical importance to modify the conditions of access to the land with the object of amplifying the results obtained by land reform measures undertaken in the past and as an important way of attaining the targets pursued by national income redistribution strategies.

Land reform should be understood as an ongoing process of change and adjustment of the agrarian structure to bring it in line with new national realities. Its dynamism, intensity and modalities of implementation will depend on specific conditions in each country and on the realism with which improvement of the quality of life in the rural environment is approached. In societies where the land is owned by a few people, it seems unavoidable that the relationship between man and the land should be altered in favour of landless peasants and workers. At the same time, it will be necessary to ensure the presence of adequate institutional conditions and to strengthen the support and assistance services needed to render effective the potential benefits of the expansion of internal and external markets and of the increase in investment in agriculture; to make better and non-discriminatory use of the economic incentives to agricultural production established by the Governments; and to ensure that land now lying idle or underutilized is incorporated in production.

In countries which have carried out internal land reform, situations have arisen in which the process of facilitating access to the land should be reinitiated with different features adapted to the new reality and views on land allocation programmes aimed at establishing a structure of ownership which makes it possible to distribute farm income more equitably and to secure more abundant and diversified output. Programmes designed

/in this

in this way will avoid the proliferation of minifundios, the settling of peasants on marginal land and the underutilization of land in medium-sized and big holdings still not incorporated into modern processes of organization and production with social implications. Through taxation, an effort must be made to avoid the concentration of production in a few enterprises and to give impetus to the formation of co-operatives and other modalities of team farming, whereby the negative consequences of excessive fragmentation, which in some cases is nearing the bounds of economic viability, will be partly counterbalanced.

An important aspect of the measures to provide access to the land will be the rational occupation of the national territory as the agricultural frontier is extended. Appropriate forms of land settlement and of opening the land to irrigation will relieve the demographic pressure typical of pockets of rural poverty and will help both to solve land ownership problems and to increase agricultural production and employment.

Integrated rural development programmes have been seen as ways of concentrating efforts in favour of part of these great rural masses, helping to incorporate them into the markets, making them receptive to technical progress and providing them with governmental support and assistance services which help to improve their working and living conditions. Since those programmes do not get to the root of rural poverty, however, their results go no further than the limited scope of their own action with regard to access to productive resources.

New conditions of access to the land must include the participation of the peasant class. The organization of the peasantry has proved to be of vital importance in processes of land reform; therefore, it will be necessary to promote the strengthening of their still feeble organizational structures, the rearrangement of their productive activity, and their training so as to make it easier for them to gain more room to negotiate within an overall framework of greater self-reliance as a social group; such self-reliance is indispensable for avoiding decisions adopted from above, which have often turned out to be mistaken. All of this calls for policy instruments oriented towards facilitating the organization of the peasantry and giving them freedom of decision concerning the use of productive resources and their incorporation into the market mechanisms and agro-industry.

(b) Employment opportunities

Employment is one of the central problems which must be tackled by national development strategies. In formulating these, the question arises as to the extent to which the farm labour force can be fully incorporated into the production process, considering their natural ability to cultivate the land. So far what has frequently happened has been that redundancy of labour in agriculture has increased despite the increase in production

/and migration

and migration to towns and cities. This way of relieving demographic pressure leads to proletarization but does not overcome poverty. Agricultural policies cannot ignore the reality of unemployed labour: on the contrary, and to the extent to which conditions in each country permit it, they must help to solve the problem. To pass responsibility for its solution on to other sectors without considering in detail the capacity of employment in agriculture has not given satisfactory results. Agriculture can contribute to full employment to the extent to which it eliminates or attenuates its own pressures, which induce forced migration of persons who do not find clear economic and social alternatives in other sectors of activity.

More employment can be generated by increasing the amount of land available for those segments of the population which either have no land or have it in only limited amounts; this may be done by changing systems of tenure, by new settlement, or by public investment in land improvement, especially irrigation. The incorporation of new land in the productive process will make it possible to absorb part of the surplus labour if, in addition to facilitating the occupation of areas appropriate for cultivation or stock-breeding, the basic and indispensable economic and social infrastructure is built. Settlement should not be an excuse for prolonging situations where inefficiency exists or land use is concentrated in areas traditionally reserved for farming. The substantial increase in productive potential by means of irrigation should, for its part, help to improve the situation of small producers and to ensure that pressure is not successfully applied to expel them once irrigation reaches semi-arid land (as has happened).

Seasonal unemployment, which is widespread in agricultural areas during the periods when less labour is required, may be usefully exploited by public investment in works aimed at the formation of capital in predial or extra-predial infrastructure which benefits agricultural communities. It must be borne in mind that in peasant agriculture capital formation is frequently accomplished by work on land conditioning and the buildings and installations needed for family life and the operation of the farm. To encourage different approaches to this type of work will help to improve production and living conditions in peasant agriculture.

The policy on technology, in its turn, has a big impact on agricultural job opportunities. If agricultural research and experimentation are carried out without any reference to the prevailing agrarian structures or to the availability of labour, they end by producing results which only partially or marginally meet the needs of the majority of producers.

Some polcies aimed at reducing the cost of certain inputs, equipment and machinery have an impact on agricultural employment. The objective of such policies is to increase the capital of small farms and raise the technical level of agricultural work, but they may lead to distortions in the role which abundant factors, such as the labour force, may play in the aggregate functions of production: the participation of the labour

/force may

force may be more intense if capital formation is not indiscriminately subsidized. Conversely, some labour market regulations, which make the cost of labour excessively high, may lead to an increasing tendency to dispense with a permanent labour force in agricultural production. The various factors which influence job opportunities require analysis and careful treatment if it is wished to combat rural poverty by increasing employment.

Thanks to the strengthening of the interrelationships between agriculture and the rest of the economy, the development of new activities in the rural environment is having a diversifying effect on the sources of employment, which means that the income generated in agriculture is supplemented. On the other hand, training and instruction help labour to acquire the skills necessary for agro-industry, construction, and the services which operate in the rural environment. Regionalization and administrative decentralization programmes may contribute to the development of non-agricultural activities and employment in rural areas.

(c) Generation, transfer and adoption of technological innovations

Because few or no new technologies are designed to meet the economic and social conditions of each country, the availability of technology is confined to that offered on the international markets, as a result of which technological models out of line with the national requirements of balanced agricultural development are adopted. In spite of the progress made in Latin America in the organization of research and the training of research workers, there is in general a notable lack of knowledge concerning the needs of peasant farmers, because of the distinctive way in which they organize their economic activity and use the land: they rarely adopt processes of specialization, as happens in the case of larger units. Moreover, there is a lack of research on some crops on systems of production based on associated or multiple crops, while little progress has been achieved in the management and recovery of ecologically fragile resources which are highly prone to deteriorate, such as those found in some tropical areas or wooded land in general.

The strengthening of national systems of research and technology transfer and of the co-ordination and complementation functions of the public, university and private institutions which go to make them up should make it possible to increase the capacity of countries to determine the orientation of their technological process, i.e., the capacity to define a scientific and technological policy for agriculture and to provide it with proper instruments. If research is not appropriately oriented, it will be difficult to react validly to problems of great social content or those relating specifically to areas of high ecological priority for future agricultural and national economic development.

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Although the use of new land and new labour will remain essential for agriculture in the majority of countries, there can be no doubt that the operation of appropriate technology will constitute a decisive factor for the economic and social efficiency of this productive activity and for the adequate conservation of the natural resources employed.

The region's technological policies have, to a greater or lesser extent, been influenced by the technological model established in connexion with the "green revolution". While it is recognized that notable scientific progress has been made since the beginning of that revolution, it must be admitted that in addition to shortcomings in the adaptation and transfer of technology, there has been a virtual absence of other initiatives. This has resulted in a big change in the Latin American ecosystems, with a tendency towards their homogenization and in the final analysis has led to the loss of positive attributes deriving from the notable environmental variety available in Latin America. To this we must add that specialization and the artificialization of the environment has created a requirement for bigger and bigger energy inputs.

In orienting the generation of technology - and in broader terms the supply of technology - it will be necessary to pay special attention to the impact produced on the special features and attributes of the ecosystems both by the new technologies and by the different uses of the soil and the process of bringing new areas into production. The search for economic efficiency in the short term has meant that extensive land areas in Latin America are not used. It is necessary to seek models of agrosystems in which it is possible to keep control over resources and use them to the fullest extent; particularly in tropical agrosystems. Among other tasks, research should come up with answers which make it possible to recuperate ecologically deteriorated areas and should make the agrosystems less dependent on the consumption of fossil fuels.

Undoubted progress has been made in the region in the generation of technology and the availability of technical services and technological inputs. The same cannot be said of the processes of technological transfer, however: a field which offers a significant challenge if fuller social participation in the benefits of agricultural economic growth is to be sought. It is characteristic of some technological options that their requirements with regard to the organization of production and particularly to capital formation are usually very difficult to meet where labour is abundant. Research and technical assistance and financial institutions should favour research aimed at generating new technical options which are centred around the productive systems as such. There are examples in some countries of the new possibilities opened up to large groups of peasant producers for raising both their productivity and their income through technological options centred on the systems of production.

/In looking

In looking for appropriate technological options, the institutions responsible for the generation of technology should engage in a permanent exercise of selecting priorities, in the framework of the objective of strengthening a type of development characterized by a broader, social base. Only in this way will the problems and limitations of the neediest users be included in the research processes, which, in their turn, should remain in close contact with the bodies responsible for promoting the transfer of technology. A basic criterion of any exercise for assigning priorities for research will be the analysis of the intensity of use and the combination of productive factors in accordance with the characteristics of each agro-ecological area and of the national style of development.

(d) Promotion and support of production

The various policy measures taken to facilitate access to the land, to increase job opportunities and to generate, transfer and promote the adoption of technologies will help to meet the great challenge to Latin America: to raise the rate of agricultural production still higher, but in such a way that at the same time pockets of inequity and indigence are eliminated and consideration is given to the long-term conservation of natural resources.

In the production promotion and support measures taken to supplement those mentioned above, two basic facts must be borne in mind: first, the need to modify the tendency of the present process of modernization towards concentration and exclusion and to promote a new pattern of development involving the elimination of rural poverty, unemployment and social inequalities; and secondly, the urgent need to extend the coverage of these measures and to give priority to helping the great rural masses.

In order to reach these objectives, it will be necessary to take specific measures regarding credit, marketing, prices, the supply of agro-chemical inputs and the strengthening of State services providing support for peasant agriculture.

For production to increase more rapidly, it is necessary to use credit to make more financial resources available to farmers. There is an obvious need to extend the coverage of credit and to revise its operative modalities with a view to ensuring that the small producer is incorporated into institutional credit facilities. Experience shows that seemingly attractive measures such as subsidized interest rates do not necessarily guarantee such incorporation. It will be necessary to supplement these measures with others which will allow traditional farmers to minimize their risks, which is very important in their decision-making. It is also advisable to study the establishment of some kind of agricultural insurance for small farmers.

/Marketing policies

Marketing policies must, in general, be geared to the achievement of the following objectives; the marketing process must be more efficient and less costly; post-harvest and storage losses must be kept to a minimum; mechanisms must be adopted which give producers and particularly small producers the assurance of the timely purchase of their products at reasonable prices, and the supply of food to the population must be adequate.

Marketing policies should take account of the characteristics of the production-storage-distribution-consumption circuit of each product or specific group of products, so that they do not cause disequilibria which may aggravate pre-existing problems such as unemployment or reduced supplies of certain products. These policies should also facilitate the incorporation into the market, on more favourable terms, of traditionally marginal productive segments.

To implement the marketing policies, it will be necessary to provide a new infrastructure for this purpose, to improve the already existing infrastructure considerably, and to integrate isolated and inaccessible productive areas into the market. In other cases, it will be necessary to establish guaranteed purchasing arrangements which ensure producers, particularly small producers, an outlet for their products on favourable terms.

Price policies constitute a powerful instrument for achieving the basic objectives set forth in national agricultural development strategies. Their approach and modalities will depend on the conditions and possibilities of each country. These policies will define the exchange relations between agriculture and the other economic sectors, as well as among agricultural products. They must help to improve the economic conditions of the most underpriviledged segments of agriculture, while at the same time taking care that this is not reflected in distortions or inflationary pressures.

Price policies must stimulate production and the incorporation of new technologies, but within a framework of consistency and compatibility with other sectoral policies, so as to keep their benefits from concentrating in the hands of those farmers who have traditionally turned out to benefit by those measures. In addition, they must reduce the degree of price uncertainty, to which small farmers are particularly sensitive. Additional measures will be required to keep the rise in agricultural prices from lowering the already low consumption of the poorest urban and rural groups.

There is a variety of types of policy measures and instruments which can be implemented with these purposes in view, and they may be implemented individually or in combination. Those most frequently resorted to are the establishment of support or guaranteed prices for certain basic commodities; subsidies to lower the price of agricultural machinery and equipment and of agro-chemical inputs with a view to promoting technological change; free domestic prices within certain limits; completely free prices, or free prices in combination with policies for ensuring supplies to poor consumers.

/The policies

The policies for supply of agro-chemical inputs must ensure that the inputs required by the productive process will be available to producers - especially poor producers - in a suitable form and at reasonable prices. To this end it will in many cases be necessary for the State to have supply centres located in parts of the national territory where there are no other channels of distribution or distribution is inadequate and expensive.

It will be necessary for the public sector to strengthen its operational capacity (unless policies deliberately aimed at reducing it are being applied) so that its provision of support services is in keeping with the policy measures taken in favour of agricultural and rural development. This strengthening must be accompanied by improvements in the efficacity and efficiency of its work so that the resources invested are appropriately used and duplication of effort and, above all, conflicts among the various State agencies are avoided. Similarly, vocational training programmes will be required, in particular in those areas in which there is little accumulated experience, such as the generation of appropriate technology, the dissemination of technology among smallholders, and the extension of the coverage of institutional credit.

On the other hand, government participation in the marketing of certain agricultural products (when it exists) will require an adequate supply and transport infrastructure, which will call for functional specialization of the relevant public agencies and the training of their staff in such work.

Finally, the strengthening and improvement of the data systems of the public agricultural apparatus must constitute an important field of action in order to make it possible to introduce the adjustments and changes considered necessary in current plans and programmes to adapt them to changing national realities.

(e) Expansion and organization of markets

The expansion of domestic and external markets has a vitalizing effect on agricultural activity. The slow growth recorded in the past for some products, and the actual decline in the output of others, is partly explained by the slow growth of international and/or domestic markets. The efforts made to improve the operation of agricultural markets, to expand and diversify them, must form an important part of the measures envisaged in the national agricultural and rural development strategies.

In the 1960s and 1970s, the growth rate of domestic demand was higher than that of exports and therefore significantly increased the importance of the domestic market among the factors giving impetus to production. The growth of domestic demand was influenced by accelerated urban development, the rise in average income and the increasing tendency for the agricultural population to be incorporated into the food markets. These factors have also brought about changes in dietary habits and consequently modifications in the composition of demand.

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It is in the market that producers realize their economic aspirations or are brought up against their failures, and it is here that the amount of the return on their labour and invested capital is mainly defined. The differentiated participation of agricultural producers in the markets is reflected in the unequal distribution of productive resources and factors. Because of the volume and quality of the goods they offer and because they have access to means of information and transport, storage facilities and financing, the medium-sized and large enterprises are in a better position to obtain remunerative prices. The segmented and scattered line of products offered by small farmers, which is made up mainly of basic foodstuffs and food for mass consumption, is usually traded at low prices. The measures designed to facilitate their access to the land and to other means of production must therefore be accompanied by other measures which strengthen their negotiating power, one relevant measure of this kind being support for small farmers' associations.

The measures noted above with regard to marketing and agricultural prices could strengthen the position of small farmers in the markets. Their incorporation in the markets will also be helped by the construction of tertiary access roads and the improvement of means of transport so that they can move their production and incorporate it into the national supply.

With regard to access to external markets, the same old restrictions have been maintained, and in many cases not only have they increased but new ones have been added. The slow growth of agricultural exports, the rapid rise in imports of some foodstuffs, the unfavourable terms of trade and the reduction in the participation of the region in world agricultural trade shackle and impede agricultural and national development and have a negative impact on the balance of payments of many countries.

To the above are added the maintenance of and, even worse, the increase in protectionist measures of various kinds which impede easy access to the markets of the developed countries. These limiting factors make it difficult to secure full use of the potential of the countries of the region to produce agricultural commodities for export.

To deal with this kind of situation, it will be necessary to press on with the combined action taken by the developing countries to bring about changes in international trade which will facilitate the access of both their raw materials and processed agricultural commodities to those markets. This, together with the increase in intra-regional trade, should help to ensure price stability and increase export earnings, and should form part of a series of measures consistent with the achievement of those goals at the national level. Such measures include the elimination of red tape; the modification of tax and exchange rate systems which penalize and discourage agricultural exports; the provision of adequate infrastructure and the promotion and diversification of new exports.

/The application

The application of national policies related to external trade in agricultural products must be closely linked with the other measures for agricultural development to ensure that the benefits derived from more exports are channelled to the reduction of poverty and inequality in rural areas.

(f) The dynamism and composition of investments

The increasing interdependence and integration of agriculture with the other sectors and with the economic system as a whole have resulted in greater concern for the composition and growth of agricultural investment. The impact of that interdependence is reflected primarily in the relative prices of foodstuffs and other agricultural commodities, in the relative cost of labour, in the rate and characteristics of the incorporation of technology and in the size of net intersectoral transfers of resources. Agriculture has been assimilating all this within the framework of its own restrictions and functional heterogeneity, which has made it more difficult for it to solve its own problems.

In recent years, governments have adopted a number of measures, some of them unprecedented in terms of scope and expected impact, designed to influence both the organization of agricultural financial markets and the management and intensity of the mechanisms for promoting the mobilization of financial resources for agriculture. There are indications of active efforts by governments to achieve marked increases in private investment in agriculture, both of the type which yields short-term increases in production and productivity and that which matures slowly. Special mention should be made of the supplementary efforts aimed at raising the efficiency and the capacity of the public agricultural apparatus in its different fields and levels of action.

The nature and dynamism of public and private investment in agriculture are very much coloured by the origin of the funds available. In the 1970s official external assistance, at both the multilateral and the bilateral levels, was of substantial help in financing the agricultural investment of many of the countries in the region. The bulk of those resources was earmarked for financing infrastructure works, for developing land and water resources, for rural development and for strengthening support services in connexion with both the productive process and the transport of harvests. It is estimated that about 20% of all foreign loans were used to finance private agricultural investment of a strictly productive nature.

To increase production within a framework of greater equity, there is need for measures aimed at bringing about the more effective, systematic and co-ordinated use of those external resources. Similarly, it will at the same time be necessary to find mechanisms for increasing the external funds derived from untied credit and from aid with a high concessional content. In addition, there is a need to review the terms on which these credits are granted, bringing them into line with the nature and characteristics of agriculture.

/Efforts must

Efforts must also be made to obtain more loans for programmes and projects in which the objective of economic growth and technical progress is accompanied by social objectives, such as raising employment, improving income distribution, raising the level of nutrition and strengthening food security measures. To do this, it will be necessary to make the projects submitted to international financial institutions more flexible so that they can be amended in the light of changing conditions and needs which arise while they are in course of implementation. Consequently, it will be necessary to step up efforts to train local personnel in the identification of potential areas for investment in agriculture and in the satisfactory preparation of project proposals.

(g) Agro-industrial expansion and the rearrangement of the participation of foreign private capital

In the 1980s, agricultural development in the Latin American countries will doubtless result in an even faster growth of agro-industry than the already rapid growth recorded in recent years. That greater dynamism will be impelled by and will tend to be in the hands of a small number of large transnational corporations, whose agro-industrial models are reflected in national agricultural and rural development.

Obviously, the countries must seek ways of availing themselves to the maximum of the financial, technical, organizational and marketing advantages offered by such corporations, but in doing so they must bear in mind the power that those corporations wield which may allow them to operate in ways incompatible with national interests. They create technological patterns which are not always appropriate, habits of consumption which are difficult to keep up in their absence and very costly to replace; moreover, they exercise control over the external and internal marketing of inputs and manufactures in terms of both volumes and price, which allows them to make substantial profits and remit large amounts of money abroad.

The policy options of the Latin American countries are not easy where the transnational corporations are concerned. Generally speaking, it is a question of whether or not they are to remain subject to market mechanisms which reflect situations of growing oligopoly. If those corporations are to remain in the countries they must respect the rules of the game and at the same time the countries must, as appropriate, seek ways of protecting national enterprises either in order to allow them to coexist with the transnationals with greater possibilities of competing with them or by supporting the national enterprises so that they can take the place of the transnationals, particularly where agro-industrial activities are concerned.

/It will

It will also be necessary to improve and increase the capacity of agricultural producers to intervene in the market, by stimulating their associations with a view to reducing or eliminating the absolute predominance exercised by the transnational corporations through their vertically integrated primary and industrial production systems.

At the same time, it will be necessary to study policies applicable to external private capital, to define machinery which can be used in negotiations with corporations producing technology and to establish appropriate bodies for controlling and supervising the activities of transnational corporations in order to increase the benefits derived from their investments. In other cases, the association of State or mixed enterprises with foreign private capital may be an appropriate basis for reaching understanding. This is an approach in which some experience has been acquired which has made it possible to define procedures for the transfer of technology, raising the quality of products, increasing the income of rural producers and establishing better mechanisms for linking up with external markets.

Not to accept transnational corporations is to choose a rather autarchic form of development based on national effort, on a full understanding of the existing options, on scientific knowledge which is already freely available, and on a country's own technological structures, with the support and co-operation of specialized international agencies.

Governments must adopt policy measures relating to land ownership and use which guarantee the protection of national versus foreign interests, because farm land is a vital resource for the economic and political independence of countries. The activities of transnational corporations must be set in the framework of the policy lines and development strategies of each country and be governed by them in order for such activities to be appropriate in the light of national needs, interests and realities and in order to prevent the well-known tendency of those corporations to intervene in domestic politics.

3. Some specific policy measures at the regional level

Co-operation efforts among the countries of the region in connexion with food and agriculture have given rise to difficulties and sometimes to conflicts. Co-operation in agriculture and food is more recent than co-operation in commerce and industry, and it is only just beginning to be assimilated to the political factors and motivations which sustain and promote it. Activities related to co-operation in this sphere have in general been accepted more or less by force of circumstance. They did not arise out of a clear awareness of the advantages of interdependence, and for this reason ways of reaching multinational agreement on their practical and permanent consolidation are still being sought.

/The technical

The technical and environmental difficulties involved in efforts at sub-regional or regional agricultural co-operation can be overcome no matter how complicated the possibilities for action may be; with regard to appropriate methods and techniques, the accumulated experience suggests that the restrictions of a technical nature are not insurmountable, especially in view of the possibility of co-operation with and supplementary aid from international financial and technical institutions. No matter how novel the suggestions and initiatives may be, however, they will be very week in the absence of the appropriate political will.

The main spheres of action for more intense sub-regional and regional co-operation are:

(a) The mobilization of domestic resources for increasing agricultural production and productivity

Consideration should be given to arrangements for multinational action giving rise to:

(i) Production programmes aimed at the joint exploitation of abundant resources, while at the same time taking the necessary measures for their conservation. Various foodstuffs may be produced under such programmes by adjacent countries using complementary productive resources;

(ii) co-ordinated programmes for the production of inputs and equipment for agriculture and/or the conservation of foodstuffs;

(iii) joint programmes for controlling and eradicating plant or livestock pests and diseases.

The national State institutions dealing with agriculture and food should establish co-operation agreements in certain fields, such as:

(i) the exchange of experts and technical assistance in specific spheres;

(ii) the generation of technology, the extension of the national genetic base and the transfer of findings to the producer;

(iii) the training of professionals and support personnel.

(b) The expansion of interregional food trade and supply

Bilateral or multilateral co-operation based on complementary production for the purpose of making foodstuffs more readily available and increasing their consumption is of particular importance. The countries of the region have experience in this kind of agreement, and their practical usefulness and political feasibility have already been demonstrated. Many formulas may be devised for trade in foodstuffs considered to be "critical" (wheat, rice, beans, oilseeds and dairy products).

/Advances of

Advances of varying magnitude in the suppression of tariff barriers and quantitative and other restrictions have promoted a somewhat irregular increase in reciprocal agricultural trade. Entering into bilateral agreements for the purchase and sale of agricultural products does not, however, necessarily reflect a perceptible change of attitude or an inclination to give preference to regional self-sufficiency. In this regard there is still a long way to go.

Sub-regional and regional co-operation can have the twin long-term objective of bringing about a marked increase in the degree of self-sufficiency in "critical" foods and guaranteeing food security, which would be incorporated into the broader framework of the Plan of Action for World Food Security proposed by FAO and adopted in 1979. This co-operation is based on the following guidelines:

(i) Adoption of policies relating to stocks of food grains;
(ii) Determination of criteria for the administration and liberalization of national stocks;
(iii) Establishment of special measures to help countries to meet their food import needs in times of emergency or in difficult conditions;
(iv) Increased aid for world food security;
(v) Collective self-sufficiency of the developing countries.

In the short term, gradual progress can be made in the substitution of extra-regional imports by products from the countries of the region. Instruments or measures which can facilitate this kind of regional co-operation include:

(i) The establishment of medium- or long-term bilateral or multilateral commercial commitments or contracts between countries which produce complementary commodities;
(ii) The creation of financial mechanisms to provide support for the promotion of national production of the commodities involved and permit more intense trade;
(iii) The creation of multinational corporations to promote intra-regional trade and the joint acquisition of the inputs used in production;
(iv) The establishment of agreements among State agencies for marketing agricultural products;
(v) The expansion and strengthening of the market data systems (for both agricultural commodities and inputs) which are being promoted by the economic integration schemes;
(vi) Support for and promotion of producer's associations which pursue in addition to objectives likely to raise production, the greater development of intra-regional trade in their products. These associations can play an important role in the diversification of crops in the countries involved, which would result in a rise in incomes, an increase in jobs and an improvement in the average food and nutritional levels;

/(vii) Complementarity

(vii) Complementarity of production in border areas, which has always been a matter of great interest because the natural trade facilities of such areas make it possible to expand and diversify production, raise incomes and keep border towns - many of them far from multinational marketing channels - supplied with food;

(viii) The establishment of appropriate trade infrastructure, especially central supply and storage facilities both in producer areas and at international shipping or dispatch points; this, together with the improvement of intra-regional transport, gives valuable support to agricultural trade and integration.

(c) Increasing regional negotiating power in foreign agricultural trade

Latin America is a net exporter of agricultural products; its sales abroad result not only in a substantial inflow of foreign currency but also in national productive activities which provide employment and income for extensive sectors of the agricultural population. The instability of the international markets and the protectionism practised by the developed countries, however, have affected and are affecting export earnings and are discouraging production. In the long run, this situation is harmful not only to the region itself but also to the whole world; it m help to bring about the repetition and even the worsening of recent crises in world food supplies.

Regional co-operation in this important field has been concentrated on a few products such as sugar, bananas, coffee, meat, wine and timber, but other products can also be the subject of concerted or co-ordinated action. It will be necessary to insist in such measures as:

(i) Agreement on common Latin American positions and strategies vis-à-vis third countries or groups of countries and in international forums. The basic goal will be to increase considerably Latin America's bargaining power in prenegotiations and negotiations leading up to the signing of future international commodity agreements with economic clauses;

(ii) The adoption or consolidation of a regional position vis-à-vis international commodity agreements already formulated or any other kind of world action aimed at establishing new guidelines in the international trade in agricultural commodities which are of relevance for Latin American countries;

(iii) The creation of producers' associations, support for efforts to see that those already in existence are consolidated, and the formulation of measures to allow them to find viable solutions to their trade problems in the international context. The negotiation of bilateral agreements between these associations and developed countries or groups of developed countries may be a suitable short-term measure, supplemented by provisions for the renegotiation and incorporation of clauses which meet the interests both of the region and of the purchasing countries;

/(iv) The

(iv) The submission of concrete proposals for greater liberalization of trade and for access to markets in the developed consumer countries;

(v) The joint promotion of the consumption of hot-climate products in countries with centrally planned economies and the seeking of long-term arrangements and agreements to guarantee stable supplies for them.

(d) The mobilization of external resources for improving food supply and production

In a number of international forums, the Latin American countries have drawn attention to the need for a substantial increase in the external financial assistance to agricultural and rural development. At the same time, they have recognized that there is an urgent need for the developing countries to make intense efforts to see that the many sources of external resources are better co-ordinated with a view to avoiding competitive situations and achieving programming more in accordance with the needs of the countries receiving that assistance.

The concerted and co-ordinated action of the Latin American countries - within the broader framework of the common efforts the developed countries are making in this direction - should result in the revision of some of the terms on which financial assistance is granted by international financial institutions. In particular, an effort must be made to procure financing in package deals and (when feasible) for integrated projects on rural development or food systems instead of studying and approving each of the projects involved separately; this would bring about greater flexibility in the allocation of external resources, reduce the time gap between the formulation and implementation of agricultural or food projects, and improve the formulation and implementation of measures integrated with action to meet the various needs arising in the production and distribution of food and to raise the quality of life in the rural environment.

The great majority of the countries in the region are faced with serious problems of financing both their local investment costs and their ordinary expenditure, particularly in connexion with the extension of the geographical coverage of agricultural projects for the peasant sector. Co-ordinated regional action (supported by the other developing countries) might induce the international agencies to consider modifying their present lending guidelines and facilitate the granting of funds on concessional terms, with grace periods, to cover local investment costs and current expenses.